

WSDOT Proposal Checklist

Proposal Name		
Principal Investigators		
<input type="checkbox"/> 6 copies (draft only)	Address to Leni Oman, MS 47372	
<input type="checkbox"/> 2 copies (draft only)	bcc:	

- | | |
|---|---|
| <input type="checkbox"/> University Signature Page
<input type="checkbox"/> TRAC Title Page
<input type="checkbox"/> Table of Contents
<input type="checkbox"/> Problem Statement
<input type="checkbox"/> Background
<input type="checkbox"/> Objectives
<input type="checkbox"/> Benefits
<input type="checkbox"/> Products
<input type="checkbox"/> Implementation | <input type="checkbox"/> Work Plan
<input type="checkbox"/> Staffing Plan
<input type="checkbox"/> Level of Effort
<input type="checkbox"/> Facilities Available
<input type="checkbox"/> Supporting Data
<input type="checkbox"/> Work Time Schedule
<input type="checkbox"/> References
<input type="checkbox"/> Budget Estimate
<input type="checkbox"/> Budget Plan |
|---|---|

RESEARCH PROPOSAL PREPARATION GUIDE

PURPOSE

This guide is intended to help researchers prepare a proposal that will gain acceptance with a minimum of changes. **It is very important that the proposals be prepared as requested to avoid delays.** An example that begins in Section 2, Page 1 is intended to be a model for a proposal format.

GENERAL

The research proposal is a well prepared document that establishes the need for research by clearly defining the research objective, providing a detailed work plan for achieving the objective, and indicating how the research findings are expected to be used. The proposal also serves the following purposes:

- It provides sufficient information for research administrators to determine the need and justification for the research and to assess the probability that the proposed work plan will be successful.
- It focuses on the study's overall objectives as well as its details, specifications, etc.
- It assigns priorities for allocating staffing and funds for research.
- It provides a measurement of the potential uses and benefits of the research.
- It identifies potential areas in which to apply the products of the research.
- It provides research administrators with a realistic basis for measuring progress and results of the research project.
- It establishes a research "concept" as a potential research project. This permits research administrators to interface the project with other related research.

PROPOSAL SUBMITTAL

TRAC submits copies of your proposal to:

Leni Oman, Director of Transportation Research
Washington State Department of Transportation
1B3 Transportation Building, MS 47372
Olympia, Washington 98504-7372

ORGANIZATION

Proposals should be arranged as follows:

- | | |
|------------------------------|--------------------------|
| 1. University Signature Page | 10. Work Plan |
| 2. TRAC Title Page | 11. Staffing Plan |
| 3. Table of Contents | 12. Level of Effort |
| 4. Problem Statement | 13. Facilities Available |
| 5. Background | 14. Supporting Data |
| 6. Objectives | 15. Work Time Schedule |
| 7. Benefits | 16. References |
| 8. Products | 17. Budget Estimate |
| 9. Implementation | |

The remaining sections of this document, following the table of contents, provide a shell to help structure your proposal. Read the explanations of what each section should contain, then replace the descriptions with information that is appropriate for your project.

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

TO:

Leni Oman, Director
Research Office
Washington State Department of Transportation
Transportation Building, MS: 47372
Olympia, Washington 98504-7372

TYPE OF SUPPORT REQUESTED:

Contract

TITLE OF PROJECT:

" _____ "

AGENCY CONDUCTING THE WORK:

e-mail: trac@u.washington.edu
Voice: (206) 543-8690
FAX: (206) 685-0767

Washington State Transportation Center (TRAC)
University of Washington, Box 354802
University District Building, Suite 535
1107 N.E. 45th Street
Seattle, Washington 98105-4631

PRINCIPAL INVESTIGATOR:

e-mail: _____@u.washington.edu
Voice: (206) ____-____
FAX: (206) ____-____

Name
Department of Civil Engineering
____ More Hall, Box 352700
University of Washington
Seattle, Washington 98195

AMOUNT REQUESTED:

\$____,____

DESIRED PERIOD:

____ __, 199__, through ____ __, 199__

**UNIVERSITY OFFICE TO BE CONTACTED
REGARDING NEGOTIATION OF AWARD:**

Phone Numbers:
Voice: (206) 543-4043/FAX: (206) 685-1732

Grant and Contract Services
3935 University Way N.E.
University of Washington
Seattle, Washington 98105-6613

DATE _____

_____, Principal Investigator

DATE _____

Mark E. Hallenbeck, TRAC Director

DATE _____

G. Scott Rutherford, Chair
Department of Civil Engineering

DATE _____

Mary E. Lidstrom, Assoc. Dean for New Initiatives
College of Engineering

DATE _____

OFFICIAL AUTHORIZED TO GIVE
UNIVERSITY APPROVAL:

Carol Zuiches, Director
Office of Grant and Contract Services
Organizational Code: 2600006020

TRAC Proposal Coordinator _____ Date _____

PROPOSAL TITLE

by

Single Author
Title and Affiliation

Joint Author
Title and Affiliation

Joint Author
Title and Affiliation

Washington State Transportation Center (TRAC)

University of Washington, Box 354802
University District Building, Suite 535
1107 NE 45th Street
Seattle, Washington 98105-4631

A proposal prepared for

Research Office
Washington State Department of Transportation
Transportation Building, MS: 47372
Olympia, Washington 98504-7372

Month and Year

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LIST OF FIGURES

1.

PROPOSAL TITLE

PROBLEM STATEMENT

This section should be a clear and concise statement covering the problem to be solved by the proposed research.

BACKGROUND

This section should contain the following essentials:

- The findings of a literature search and an indication of the existing technology;
- An indication of the researcher's understanding of the underlying principles involved;
- The relationship between the proposed study and prior research; and
- A statement supporting the researcher's proposed approach and the reasons why.

OBJECTIVES

This section should state the technical objectives upon which the researcher's efforts will be focused. The objectives should clearly and concisely identify what products the researcher seeks from the research.

BENEFITS

This section should clearly and concisely describe what benefits the researcher anticipates from the research, and include the following advantages to be gained:

- A saving of time and money,
- An increase in safety,
- An improvement in service,
- An improvement in aesthetics or environmental quality,
- A reduction in product or operational costs, and
- An improved procedure or longer lasting product.

PRODUCTS

Provide a list of products that will be delivered to WSDOT during the contract. This might include draft reports, final reports, computer programs, photos, slides, slide/tapes, video tapes, equipment, visual aids, physical models, databases, etc. At a minimum, the following documents will describe the research and its results (descriptions of content and format are detailed in *WSDOT Research Report Requirements*):

- draft technical report and/or draft final report,
- camera-ready final technical report and/or final report,
- a one-page summary, and
- progress reports.

IMPLEMENTATION

Work with WSDOT's Technical Monitor to assess areas in which the anticipated research findings could potentially be applied. The development of the research proposal is really the first opportunity for adding detail to the scope of the project. Use this opportunity to ensure that WSDOT and the research team have the same objectives and expectations. WSDOT's implementation concerns should influence the direction and the scope of the research. This section should discuss areas in which the anticipated research findings could potentially be applied, including the following:

- The form in which the researchers might report the findings, such as a mathematical model or formula, a laboratory test procedure, or a design technique;
- The organization that will be logically responsible for applying the results, such as the American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), the Washington State Department of Transportation (WSDOT), or a specific WSDOT manager;
- The specific standard of practice that would be changed by the findings (if successful) such as AASHTO standard specifications, WSDOT standard specifications, policy directives, implementation manuals, or operating procedures;
- The means by which the research findings might best be transferred to operations people for use or application, such as the circulation of a written report, a report summary, personal contact between WSDOT research and operating engineers, or informal memoranda;
- Additional steps the researcher expects will be required before the research findings can be applied if they will not be suitable for immediate practical use at the end of the stated project.

WORK PLAN

This section should *completely describe* the plan or approach the researcher intends to use and specify how the researcher will structure and perform the research to meet each research objective. The format of this section shall be divided into major tasks. The researcher shall address how each task will be carried out. Give each task a number and a title, followed by a brief description of what each task will entail. The work plan should contain the following information for each of the four types of research activities as appropriate:

Theoretical Research (concept oriented)

- The basic approach to the development of the theory
- Specific hypotheses derived from the theory
- A theoretical framework (experimental design) for research
- Significant variables to be tested
- Data analysis and statistical procedure(s)

Applied Research (problem oriented)

- Principles or theories to be used in the solution
- Possible problem solutions
- Critical experiments to test the applicability of the theory
- The kind and range of variables to be tested
- Experimental facilities available
- Data analysis and statistical procedure(s)

Development

- The device, process, material, or system to be developed
- The applied research upon which the development is to be based
- The plan of work to complete the development
- The kind and range of variables considered in the development
- Facilities available for the development
- Data analysis procedures, including adequate statistical methods

Measurement, Test, and Evaluation

- Item to be evaluated or measured
- The extent of the development of the item
- Criteria for evaluation
- Testing procedures
- The conditions under which evaluation will be made

- Controls to be used
- Data analysis procedures, including adequate statistical methods

Task 1 — Task 1 Title

Description of Task 1.

Task 2 — Task 2 Title

Description of Task 2.

Task 3 — Task 3 Title

Description of Task 3.

Task 4 — Task 4 Title

Description of Task 4.

Task 5 — Task 5 Title

Description of Task 5.

Task 6 — Task 6 Title

Description of Task 6.

STAFFING PLAN

This section should discuss

- the people involved in the research and their capabilities;
- staff organization and functions;
- personnel availability; and
- the augmentation necessary to properly conduct the research.

It should relate personnel to specific aims and procedures. An organization chart of the project and a short description of researchers and their roles is appropriate. The following paragraph ***must be included*** in all TRAC proposals:

Editing, word processing, and graphics support for this project's reports and presentations will be provided by the TRAC interdisciplinary center at the University of Washington.

LEVEL OF EFFORT

This section identifies the percentage of effort by each person on the project, as it relates to the work plan. The table should reflect staff *time* and not percentages. A table showing the allocation of staff time by task is required. Use one of the examples below to show allocation of staff time by task:

Personnel	Task (hours, weeks, months, etc.)			
	1	2	3	Total
Principal Investigator				
Graduate Assistant				
Total				

Personnel	Task (hours, weeks, months, etc.)				
	1	2	3	4	Total
Principal Investigator					
Graduate Assistant					
Total					

Personnel	Task (hours, weeks, months, etc.)					
	1	2	3	4	5	Total
Principal Investigator						
Graduate Assistant						
Total						

Personnel	Task (hours, weeks, months, etc.)						
	1	2	3	4	5	6	Total
Principal Investigator							
Graduate Assistant							
Total							

Personnel	Task (hours, weeks, months, etc.)							
	1	2	3	4	5	6	7	Total
Principal Investigator								

Graduate Assistant								
Total								

Personnel	Task (hours, weeks, months, etc.)								Total
	1	2	3	4	5	6	7	8	
Principal Investigator									
Graduate Assistant									
Total									

Personnel	Task (hours, weeks, months, etc.)									Total
	1	2	3	4	5	6	7	8	9	
Principal Investigator										
Graduate Assistant										
Total										

Personnel	Task (hours, weeks, months, etc.)										Total
	1	2	3	4	5	6	7	8	9	10	
Principal Investigator											
Graduate Assistant											
Total											

FACILITIES AVAILABLE

This section should describe the facilities at the disposal of the researcher which are important to the conduct of the work. The following paragraphs describe the facilities available to TRAC at the University of Washington:

This research effort will be conducted through the Washington State Transportation Center, located in the College of Engineering at the University of Washington. TRAC resources available for this project include a professional staff to aid in the writing, editing, and graphics involved in report production; microcomputer facilities; and conference and drafting facilities.

The University libraries, with more than 5 million volumes, provide an outstanding collection of books, periodicals, research reports, publications, and other materials. In addition, the facilities of the Washington State Department of Transportation's library in Olympia will be available for the project.

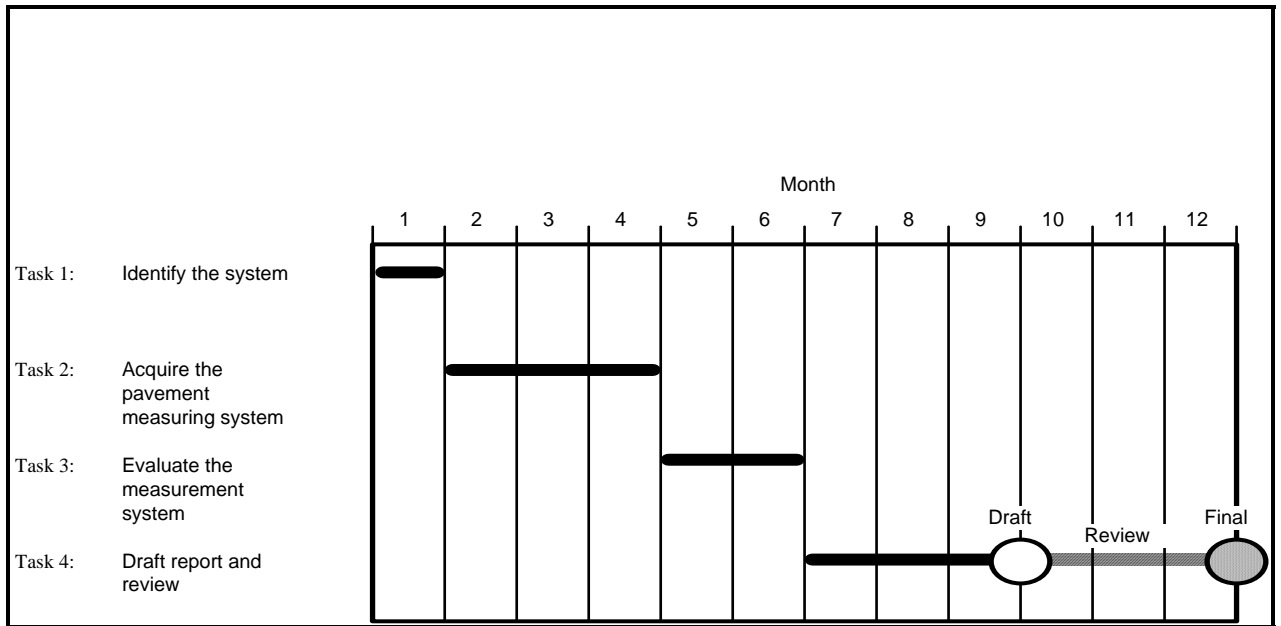
The UW Academic Computer Center provides extensive information processing facilities to the campus for research use. An IBM mainframe computer is supplemented with a campus computer network and support for all major programming languages; numerous software packages for statistical analysis, database management, graphics and document preparation; and a range of peripheral equipment, including graphics terminals and plotters. The UW Department of Civil Engineering also maintains its own computer-aided design laboratory, with a number of graphics terminals and associated peripherals hardwired to the campus computing network.

SUPPORTING DATA

This section should summarize the principal researcher's experience, capability, and past performance on **related research work** in a paragraph or two. Where an agency has prime responsibility for conducting research, such information should be related to the agency as well as to the individual. **One copy of the researcher's academic résumé on file at the WSDOT Research Office will be accepted as supporting data.** Please do not attach academic résumés to proposals.

WORK TIME SCHEDULE

Bar charts, critical path method diagrams, flow charts, or other types of pictorial presentation should be provided to illustrate the interrelationship and scheduling of the major operational tasks of the research. The overall schedule should allow for the review process, as shown in the following figure:



REFERENCES

References should follow the form of author, title, and facts of publication (see the University of Chicago Press *A Manual of Style*). (Two reference styles contained in this file allow you to format numbered or alphabetic references.)

BUDGET ESTIMATE

Please ask TRAC support staff to help assemble your project's budget. A customized computer program that TRAC has developed efficiently constructs the budget.

The budget should show the estimated cost for the full term of the research project, the current fiscal year and each subsequent year, and should include the following:

- Salaries for professional and support personnel
- Subcontracts
- Personal services
- Overhead and indirect costs
- Benefits
- Travel
- Computer time
- Inventory of equipment (purchase and/or rental)
- Expendable materials and supplies

- Report printing
- Special services (where applicable)
- A supplementary tabulation showing the total cost by sources of funds where financing includes more than federal and state matching funds.

(Remember to figure each fiscal year separately, e.g., FY 2003, FY 2004, Total.)